

Montana Department of Natural Resources and Conservation  
Water Resources Division  
Water Rights Bureau

**ENVIRONMENTAL ASSESSMENT**  
**For Routine Actions with Limited Environmental Impact**

**Part I. Proposed Action Description**

1. Applicant/Contact name and address:

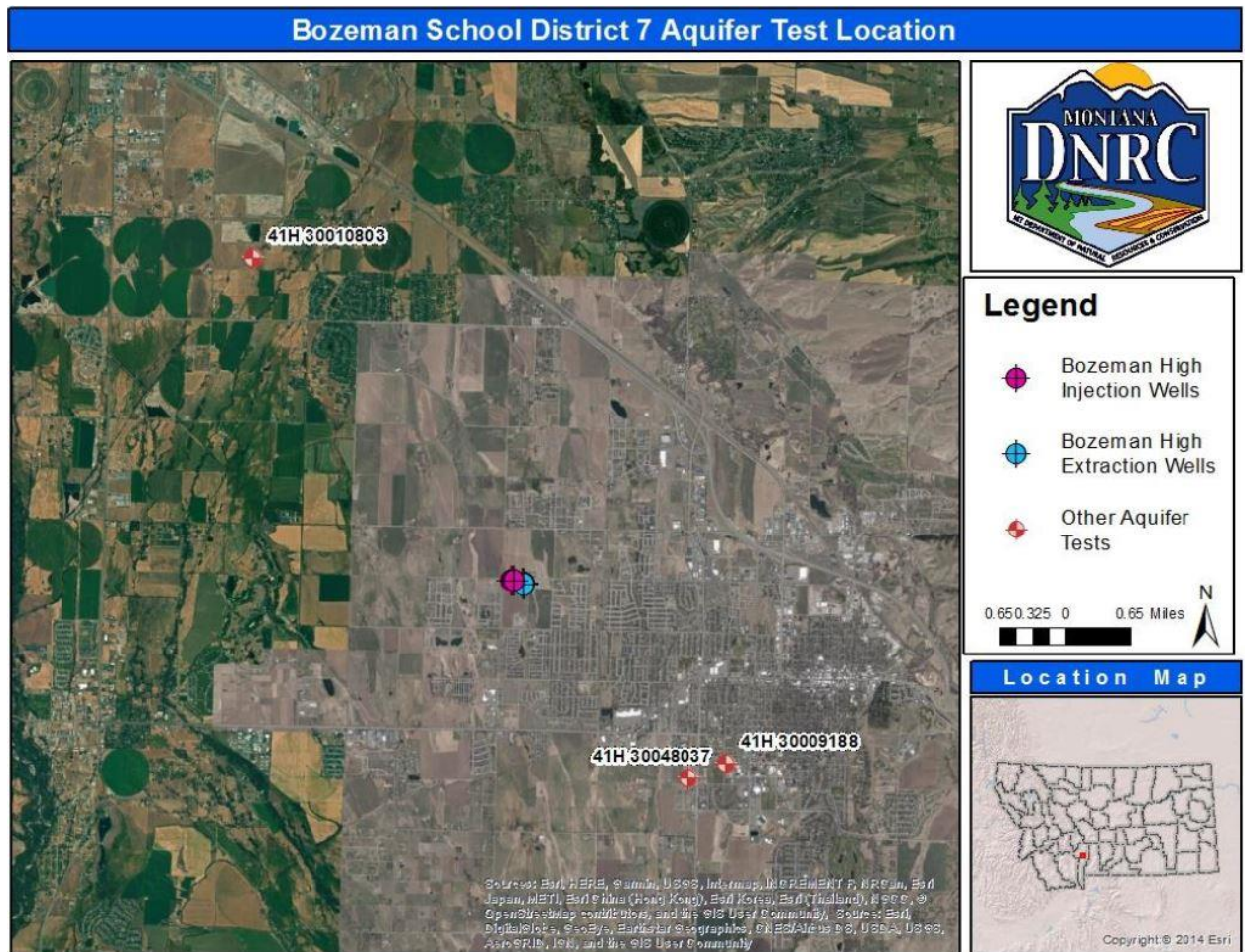
Applicant:

BOZEMAN SCHOOL DISTRICT #7  
404 W MAIN  
BOZEMAN, MT 59715

Consultant:

CTA ENVIRONMENTAL  
219 2ND AVE SOUTH  
GREAT FALLS, MT 59405

2. Type of action: Groundwater Application for Beneficial Water Use Permit (41H 30115127) for 840 gallons per minute (GPM) up to 567 acre-feet (AF) for geothermal heating/cooling. The proposed use is non-consumptive.
3. Water source name: Groundwater. The proposed appropriation includes a combined flow rate of 840 gallons per minute (GPM) and a diverted volume of 567 acre-feet (AF), from three groundwater wells for geothermal heating / cooling.
4. Location affected by project: The applicant requests three points of diversion (wells) located in the NENWSW, Section 3, T2S, R5E, Gallatin County, a place of use located in the NENWSW, Section 3, T2S, R5E, Gallatin County
5. Narrative summary of the proposed project, purpose, action to be taken, and benefits: The Applicant proposes to divert groundwater from three wells for geothermal heating and cooling and return the diverted volume back to the aquifer through three reinjection wells into the same source aquifer. The applicant requests three points of diversion (wells) located in the NENWSW, Section 3, T2S, R5E, Gallatin County, a place of use located in the NENWSW, Section 3, T2S, R5E, Gallatin County, a flow rate of 840 gallons per minute (GPM) and a volume of 567 acre-feet (AF) per year for an open loop geothermal/heat exchange system at the new Bozeman high school. An open loop geothermal system uses pumping wells to pump groundwater to the heat pump which heats/cool the building, and, in this case, injection wells return the water back to the same groundwater source. (See map below)



6. Agencies consulted during preparation of the Environmental Assessment:
- Montana Fish, Wildlife, and Parks – Montana Fisheries Information System
  - Montana Department of Environmental Quality - Clean Water Act Information Center website
  - Montana National Heritage Program

## **Part II. Environmental Review**

### **1. Environmental Impact Checklist:**

#### **PHYSICAL ENVIRONMENT**

##### **WATER QUANTITY, QUALITY AND DISTRIBUTION**

**Water quantity** - Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.

**Determination:** Not Applicable. The permit application is for the use of groundwater. Modeling by the DNRC suggests net depletions to surface water sources will not occur. Water pumped

from the aquifer will be returned through injection wells, and water will not be consumed during the heating/cooling process.

**Water quality** - *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

*Determination:* Not Applicable. Baxter Creek was determined to be hydraulically connected to the source aquifer. Depletions and accretions will cancel resulting in no net affect to surface water flows to Baxter Creek. Further, it is unlikely the non-consumptive groundwater pumping would have any effect on pertinent water quality parameters.

**Groundwater** - *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

*Determination:* No impact. The proposed project will not impact groundwater quality or supply because the proposed use is non-consumptive. Water will be returned to the aquifer at the same rate it is pumped. Due to the nature of the use (geothermal heating/cooling), water returning to the aquifer may differ in temperature than the water extracted from the aquifer. However, due to the thermal mass of the aquifer, the temperature difference in the return water is unlikely to cause any significant effect.

**DIVERSION WORKS** - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

*Determination:* No impact. The permit involves the installation three groundwater production wells. Piping for these systems will be underground and will not impact hydraulic features.

#### **UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES**

**Endangered and threatened species** - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any "species of special concern," or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or "species of special concern."*

*Determination:* No impact. There are nine animal (Hoary Bat, Little Brown Myotis, Great Blue Heron, Evening Grosbeak, Bobolink, Cassin's Finch, Clark's Nutcracker, Hooked Snowfly, and Alberta Snowfly) species of concern, and zero animal Potential Species of Concern <http://mtnhp.org/SpeciesOfConcern> (Search date 5/14/19) for Township 2S, Range 5E, Gallatin County. Six plant Species of Concern or Potential Species of Concern exist (Fendler Cat's-eye, Crosby's Buckwheat, Dwarf Purple Monkeyflower, Whipple's Beardtongue, Rocky Mountain Twinpod and Small Dropseed). As this proposed application is to pump groundwater and return it to the aquifer without consumption, no impacts will occur to threatened or endangered species, or any "species of special concern."

**Wetlands** - *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

*Determination:* Not applicable. No wetlands are involved in this project.

**Ponds** - *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

*Determination:* Not applicable. No ponds are involved in this project.

**GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE** - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

*Determination:* No impact. Pumping groundwater for geothermal heating/cooling will not impact soil quality, stability or moisture.

**VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS** - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

*Determination:* No impact. Establishment and/or spread of noxious weeds will not occur as a result of pumping groundwater for geothermal heating/cooling. Owners will be responsible for controlling noxious weeds.

**AIR QUALITY** - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

*Determination:* No impact. No deterioration of air quality will result from pumping groundwater for geothermal heating/cooling. Air quality may improve from this project as the school will experience significant energy savings with geothermal heating/cooling compared to traditional heating/cooling methods.

**HISTORICAL AND ARCHEOLOGICAL SITES** - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project if it is on State or Federal Lands. If it is not on State or Federal Lands simply state NA-project not located on State or Federal Lands.*

*Determination:* NA – project not located on State or Federal Lands.

**DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY** - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

*Determination:* No impact.

## HUMAN ENVIRONMENT

**LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS** - Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.

*Determination:* No impact. Geothermal heating/cooling is a locally accepted practice to minimize energy costs.

**ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES** - Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.

*Determination:* No impact. The proposed project will not impact access to or the quality of recreational and wilderness activities.

**HUMAN HEALTH** - Assess whether the proposed project impacts on human health.

*Determination:* The project is to construct a new school near Bozeman.

**PRIVATE PROPERTY** - Assess whether there are any government regulatory impacts on private property rights.

Yes\_\_\_ No X If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

*Determination:* The project does not impact government regulations on private property rights.

**OTHER HUMAN ENVIRONMENTAL ISSUES** - For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.

*Impacts on:*

- (a) Cultural uniqueness and diversity? No impacts identified.
- (b) Local and state tax base and tax revenues? No impacts identified.
- (c) Existing land uses? No impacts identified.
- (d) Quantity and distribution of employment? No impacts identified.
- (e) Distribution and density of population and housing? No impacts identified.
- (f) Demands for government services? No impacts identified.
- (g) Industrial and commercial activity? No impacts identified.
- (h) Utilities? No impacts identified.
- (i) Transportation? No impacts identified.

(j) Safety? No impacts identified.

(k) Other appropriate social and economic circumstances? No impacts identified.

**2. *Secondary and cumulative impacts on the physical environment and human population:***

Secondary Impacts: No secondary impacts have been identified.

Cumulative Impacts: No cumulative impacts have been identified.

**3. *Describe any mitigation/stipulation measures:*** No mitigation/stipulation measures are necessary.

**4. *Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*** No human/environmental impacts exist as a result of the groundwater permit for geothermal heating/cooling. No prudent alternative to consider exists.

**PART III. Conclusion**

**1. *Preferred Alternative*** No significant impacts exist that would require an alternative to provide mitigation.

**2 *Comments and Responses*** None at this time.

**3. *Finding:***  
Yes\_\_\_ No X Based on the significance criteria evaluated in this EA, is an EIS required?

*If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:* The EA is the appropriate level of analysis because the proposed project is to pump groundwater for geothermal heating/cooling of a hospital and no significant impacts are anticipated.

*Name of person(s) responsible for preparation of EA:*

Name: Michael Everett

Title: WRS

Date: 4/14/2019